

Trend Study 1-24-01

Study site name: Sheep Range Spring.

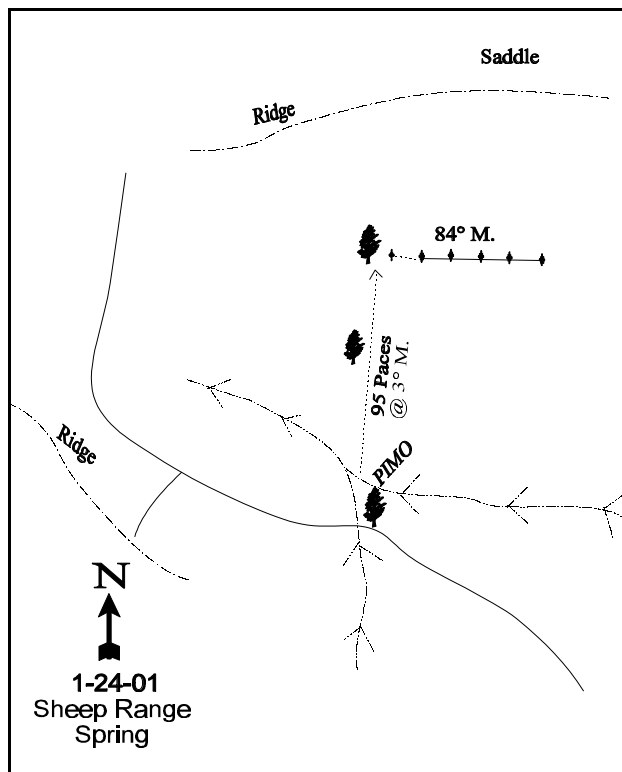
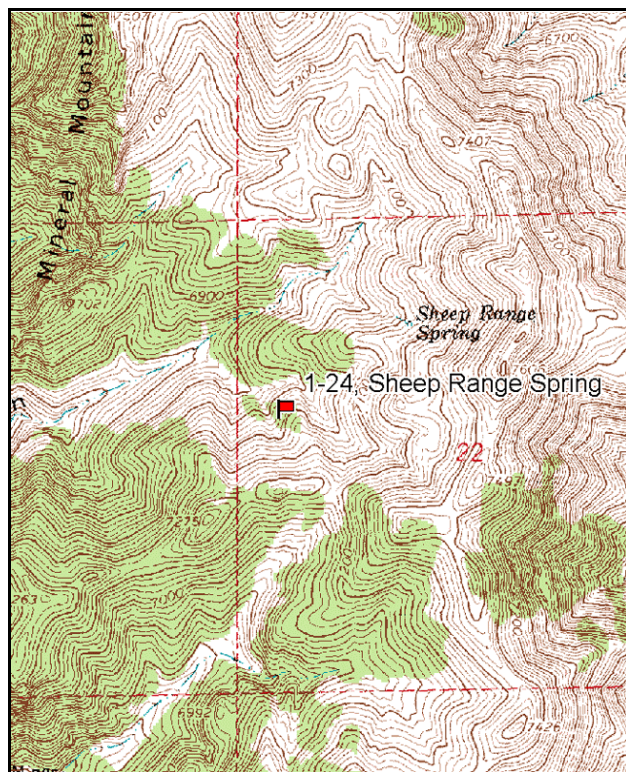
Vegetation type: Big Sagebrush.

Compass bearing: frequency baseline 84 degrees magnetic.

Frequency belt placement: line 1 (11ft), line 2 (34ft), line 3 (59ft), line 4 (71ft), line 5 (95ft). Rebar: belt 4 on 21 ft.

LOCATION DESCRIPTION

From Grouse Creek Junction, travel south for 5.4 miles to the railroad tracks. Continue straight for 0.6 miles to the TL Bar Beefmaster Ranch. Take the left fork and travel 5 miles to a fork in the road. Take a right turn and travel 2.1 miles to a four way intersection. Continue straight (stay right) for 2.7 miles to Governors Spring. Take a left at Governors Spring and drive 1.0 mile. Take a right and travel down hill for 1.0 mile. Take the left fork and continue for 1.6 miles to an intersection. From the intersection take the left and continue 1.1 miles where there will be a road going up a steep hill to the right. Stay left and travel 0.1 miles to the witness post on the left hand side of the road. From the witness post walk 120 paces at 3 degrees magnetic to the 0-foot baseline stake (near a PIMO). The baseline runs 84 degrees magnetic.



Map Name: Patterson Pass

Diagrammatic Sketch

Township 6N, Range 19W, Section 22

UTM 4567893 N, 247428 E

DISCUSSION

Trend Study No. 1-24

The Sheep Range Spring study was set up in 1996 to monitor preferred habitat used by an increasing elk population in the Pilot Mountains. The study samples a sagebrush-grass range type at an elevation of about 7,260 feet. The site was placed on the south, south-west facing side of a east, west running ridge. Slope on the site is 20% to 30%. Elk pellet groups were abundant in 1996 with some groups being recent. Two cow elk were also seen in the area during study establishment. Deer pellet groups were also encountered in relatively small numbers. Two large sage grouse were seen near the site in 1996. Deer and elk likely utilize this area during the summer as well as normal winters. A pellet-group transect read on site in 2001 estimated 5 deer days use/acre (13 deer days use/ha) and 22 elk days use/acre (56 elk days use/ha). Cattle grazing occurs in the lower canyons but no cattle were seen in the immediate area and no cattle pats were encountered on the site. This area is within the Lucin/Pilot allotment which is assigned for summer cattle use and spring sheep use. There are many mining claims in the area, but most do not appear active.

The soil is moderately shallow and extremely rocky under the first few inches of soil. There is a noticeable buildup of rock and pavement on the surface with an average of 13.5% cover. Effective soil depth is estimated at about 10 inches along the first 300 feet of the baseline, but is noticeably deeper (22 inches) along the last 200 feet. The overall average effective rooting depth is almost 15 inches. Soil texture is a loam to clay loam with a neutral soil reaction (7.2 pH). The soil erosion condition class was determined to be slight in 2001. The soil appears to have adequate protective cover of vegetation and litter.

The site is surrounded by ridges dominated by black sagebrush. The base line was placed on a ridge with deeper soils and more grass and forb cover. The browse component is dominated by mountain big sagebrush and is intermixed with black sagebrush in some of the areas with the more shallow soils. Mountain big sagebrush density was initially estimated at 2,200 plants/acre, 66% of which were classified as mature. Utilization was mostly light with a few heavily hedged individual plants. Vigor was good on most plants and percent decadency was low at 15%. Some of the decadent and dead sagebrush were found in areas with the more shallow soils where black sagebrush is more prevalent. Currently, mountain big sagebrush has a similar density, with 79% classified as mature plants. Utilization continues to be light. Vigor continues to be good with percent decadency remaining almost unchanged. Black sagebrush has decreased in density, however it only contributes, on average, about 12% of the browse cover. Utilization is light, vigor good and percent decadency relatively low at 12%.

The most numerous shrub on the site is the increaser, mountain low rabbitbrush. However, it contributes only about 1/3 of the browse cover. Density was estimated at 3,600 plants/acre in 1996 and 3,340 in 2001. The majority of the population consists of mature plants. These shrubs show no utilization. Other shrubs which are found on the site include rubber rabbitbrush and slenderbush eriogonum.

The herbaceous understory is abundant with grasses combining to produce on average just over 21% cover. Cheatgrass is common and accounted for 33% of the total grass cover in 1996, but only 16% in 2001. Common perennial species include: Sandberg bluegrass, bluebunch, and thickspike wheatgrass. Forbs produce about 1/3 of the vegetation cover. The dominant perennial species consist of arrowleaf balsamroot, silvery lupine, longleaf phlox, stickseed, and two milkvetch species. Some of the arrowleaf balsamroot was infested with bugs which caused yellow spots on the leaves in 1996.

1996 APPARENT TREND ASSESSMENT

Soil conditions are stable with abundant vegetation and litter cover. No accelerated erosion is occurring on the site. Mountain big sagebrush appears to be stable. Utilization is light, vigor good, and percent decadency low. The herbaceous understory is dominated by perennial grasses and forbs. The only negative aspect to the grass composition is the abundance of annual cheatgrass. Any decline in perennial grasses will likely allow an increase in cheatgrass. Forbs are also abundant with several preferred summer forage species for deer and elk.

2001 TREND ASSESSMENT

Soil conditions are considered stable with abundant vegetation and litter cover. No discernable erosion is occurring on the site. Mountain big sagebrush continues to be stable. Utilization is light, vigor good, and percent decadency low. The herbaceous understory is dominated by perennial grasses and forbs. The sum of nested frequency values for both perennial grasses and forbs increased slightly in 2001. Nested frequency of the annual, cheatgrass, declined significantly since 1996. Forbs are still abundant with several preferred summer forage species for deer and elk.

TREND ASSESSMENT

soil - stable (3)

browse - stable (3)

herbaceous understory - slightly up (4)

HERBACEOUS TRENDS --

Herd unit 01 , Study no: 24

T y p e	Species	Nested Frequency		Quadrat Frequency		Average Cover %	
		'96	'01	'96	'01	'96	'01
G	Agropyron dasystachyum	122	*42	36	12	2.07	.93
G	Agropyron spicatum	106	*192	37	60	2.09	8.69
G	Bromus tectorum (a)	307	*263	77	70	5.48	4.08
G	Poa fendleriana	1	3	1	1	.00	.00
G	Poa secunda	195	237	52	66	7.08	12.14
G	Stipa lettermani	3	-	1	-	.03	-
Total for Annual Grasses		307	263	77	70	5.48	4.08
Total for Perennial Grasses		427	474	127	139	11.30	21.78
Total for Grasses		734	737	204	209	16.78	25.87
F	Agoseris glauca	50	94	24	32	.17	.36
F	Allium spp.	1	*50	1	25	.00	.23
F	Arabis spp.	-	-	-	-	-	.00
F	Astragalus beckwithii	27	*3	10	1	.25	.03
F	Astragalus cibarius	62	60	32	26	.46	1.21
F	Balsamorhiza hookeri	21	16	9	8	.23	1.02
F	Balsamorhiza sagittata	130	114	57	47	12.23	9.21

T y p e	Species	Nested Frequency		Quadrat Frequency		Average Cover %	
		'96	'01	'96	'01	'96	'01
F	Camelina microcarpa (a)	19	*1	7	1	.03	.03
F	Collomia linearis (a)	3	*57	2	21	.01	.14
F	Comandra pallida	18	32	10	12	.10	.45
F	Collinsia parviflora (a)	160	*295	64	87	.62	1.75
F	Crepis acuminata	9	14	5	9	.05	.17
F	Erigeron pumilus	-	*14	-	5	-	.10
F	Eriogonum villiflorum	-	*16	-	6	-	.42
F	Haplopappus acaulis	2	-	1	-	.03	-
F	Hackelia patens	38	*14	24	6	.71	.11
F	Hydrophyllum capitatum	25	49	12	19	.20	.53
F	Lappula occidentalis (a)	6	-	2	-	.01	-
F	Lithospermum ruderales	1	1	1	1	.00	.15
F	Lomatium spp.	-	11	-	4	-	.16
F	Lupinus argenteus	33	34	19	17	.92	.86
F	Machaeranthera grindelioides	2	3	1	1	.03	.00
F	Microsteris gracilis (a)	-	217	-	72	-	1.17
F	Navarretia intertexta (a)	2	-	1	-	.00	-
F	Phlox longifolia	162	*125	56	47	.82	1.00
F	Polygonum douglasii (a)	3	-	1	-	.00	-
F	Ranunculus testiculatus (a)	-	1	-	1	-	.00
F	Senecio integerrimus	4	*16	2	10	.03	.17
F	Viola spp.	-	3	-	1	-	.00
Total for Annual Forbs		193	571	77	182	0.68	3.10
Total for Perennial Forbs		585	669	264	277	16.28	16.23
Total for Forbs		778	1240	341	459	16.97	19.34

* Indicates significant difference at alpha = 0.10 (annuals excluded)

BROWSE TRENDS --

Herd unit 01 , Study no: 24

T y p e	Species	Strip Frequency		Average Cover %	
		'96	'01	'96	'01
B	Artemisia nova	24	15	2.42	1.89
B	Artemisia tridentata vaseyana	64	62	7.43	11.06
B	Chrysothamnus nauseosus consimilis	1	1	-	-
B	Chrysothamnus viscidiflorus lanceolatus	63	62	6.23	6.55
B	Eriogonum microthecum	3	1	.03	.00
Total for Browse		155	141	16.13	19.52

BASIC COVER --

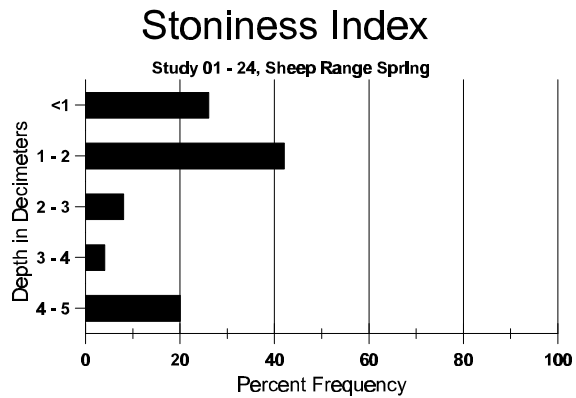
Herd unit 01 , Study no: 24

Cover Type	Nested Frequency		Average Cover %	
	'96	'01	'96	'01
Vegetation	466	474	49.35	61.50
Rock	245	142	6.65	4.62
Pavement	275	275	7.63	8.09
Litter	495	460	53.22	50.44
Cryptogams	20	4	.04	.04
Bare Ground	221	203	6.47	7.08

SOIL ANALYSIS DATA --

Herd Unit 01, Study no: 24, Sheep Range Spring

Effective rooting depth (in)	Temp °F (depth)	PH	%sand	%silt	%clay	%0M	PPM P	PPM K	dS/m
14.8	53.6 (13.3)	7.2	40.4	34.1	27.4	2.9	21.1	425.6	.8



PELLET GROUP FREQUENCY --

Herd unit 01 , Study no: 24

Type	Quadrat Frequency		Pellet Transect	
			Pellet Groups per Acre	Days Use per Acre (ha)
	'96	'01	'01	'01
Elk	40	11	287	22 (55)
Deer	9	1	70	5 (13)

BROWSE CHARACTERISTICS --

Herd unit 01 , Study no: 24

A Y G R E		Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.		Total
		1	2	3	4	5	6	7	8	9	1	2	3	4				
Artemisia nova																		
Y	96	3	1	-	-	-	-	-	-	-	4	-	-	-	80			4
	01	1	-	-	-	-	-	-	-	-	1	-	-	-	20			1
M	96	33	5	-	2	-	-	-	-	-	40	-	-	-	800	10	26	40
	01	21	-	-	-	-	-	-	-	-	21	-	-	-	420	10	25	21
D	96	7	-	-	-	-	-	-	-	-	7	-	-	-	140			7
	01	3	-	-	-	-	-	-	-	-	1	-	1	1	60			3
X	96	-	-	-	-	-	-	-	-	-	-	-	-	-	60			3
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'96		12%			00%			00%			-51%							
'01		00%			00%			08%										
Total Plants/Acre (excluding Dead & Seedlings)												'96	1020	Dec:	14%			
												'01	500		12%			

A G E	Y R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.		Total
		1	2	3	4	5	6	7	8	9	1	2	3	4				
Artemisia tridentata vaseyana																		
S	96 01	1 -	- -	- -	- -	- -	- -	- -	- -	- -	1 -	- -	- -	- -	20 0			1 0
Y	96 01	19 5	1 -	- -	- -	- -	- -	- -	- -	- -	20 2	- 3	- -	- -	400 100			20 5
M	96 01	65 79	8 1	- -	- 2	- -	- -	- -	- -	- -	72 66	- 16	1 -	- -	1460 1640	20 24	31 37	73 82
D	96 01	14 14	2 2	1 -	- 1	- -	- -	- -	- -	- -	12 11	- 1	- -	5 5	340 340			17 17
X	96 01	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	840 300			42 15
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'96		10%			.90%			05%			- 5%							
'01		03%			00%			05%										
Total Plants/Acre (excluding Dead & Seedlings)														'96	2200	Dec:	15%	
														'01	2080		16%	
Chrysothamnus nauseosus consimilis																		
Y	96 01	1 -	- -	- -	- -	- -	- -	- -	- -	- -	1 -	- -	- -	- -	20 0			1 0
M	96 01	- 1	- -	- -	- -	- -	- -	- -	- -	- -	- 1	- -	- -	- -	0 20	26 27	29 58	0 1
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'96		00%			00%			00%			+ 0%							
'01		00%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)														'96	20	Dec:	-	
														'01	20		-	

A G E	Y R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.		Total
		1	2	3	4	5	6	7	8	9	1	2	3	4				
Chrysothamnus viscidiflorus lanceolatus																		
S	96	1	-	-	-	-	-	-	-	-	1	-	-	-	20		1	
	01	2	-	-	-	-	-	-	-	-	2	-	-	-	40			2
Y	96	31	-	-	4	-	-	-	-	-	33	-	2	-	700		35	
	01	5	-	-	-	-	-	-	-	-	5	-	-	-	100			5
M	96	127	-	-	4	-	-	-	-	-	129	-	2	-	2620	15	25	
	01	141	-	-	6	-	-	-	-	-	125	22	-	-	2940	13	20	
D	96	13	1	-	-	-	-	-	-	-	10	-	3	1	280		14	
	01	11	-	-	4	-	-	-	-	-	15	-	-	-	300			15
X	96	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	20			1
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'96		.55%			00%			04%			- 7%							
'01		00%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)														'96	3600	Dec:	8%	
														'01	3340		9%	
Eriogonum microthecum																		
M	96	8	-	-	-	-	-	-	-	-	8	-	-	-	160	3	10	
	01	1	-	-	-	-	-	-	-	-	1	-	-	-	20	3	6	
D	96	-	1	-	-	-	-	-	-	-	1	-	-	-	20		1	
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'96		11%			00%			00%			-89%							
'01		00%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)														'96	180	Dec:	11%	
														'01	20		0%	